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Spontaneous Bilateral Pneumothorax.—About 100 cases of spontaneous bilateral pneumothorax are to be found in the literature, a number of them reported from Argentina in the last few years. While the condition is not considered serious, many of the cases take a turn for the worse, and Oeschli and Miles place the case death rate at 55.7 per cent. In the case reported here, at Rio de Janeiro, bilateral pleuroscopy was followed by intrapleural injection of dextrose solution, with successful results. In both lungs many air bubbles were present. An X-ray taken two years afterwards showed normal pleuro-pulmonary fields. —*Pneumotórax espontáneo bilateral simultáneo: Pleuroscopia e pleurodese bilaterais, J. M. Castello Branco, Clín. tisiol., (Rio de Janeiro), April–June, 1947, 2: 213.*—(*A. A. Moll*)

Emphysema and Medicinal Aerosols.—The author reports his experience in the treatment of emphysematous patients by the administration of aerosols having the property of dilating the bronchial passages, presumably by relieving spasm of the bronchopulmonary musculature. A previous communication was concerned with their use in asthma with favorable results. In this study he treated 21 patients with aleudrine alone and 18 patients with a combination of aleudrine, idrianol and novocaine. Aleudrine is a very active isopropyladrenaline, several times more active than adrenalin. It is said to relieve dyspnea when given orally in the form of compressed tablets, but is much more effective and produces more lasting results if used as an aerosol according to the author's method and with his special apparatus. At first the treatments are given daily. Each series of inhalations consisted of ten very deep inspirations of the aerosol followed by a period of breath suspension and then by rapid and deep expirations. Three such series are prescribed daily for a month. Then they are repeated three times a week for two months, twice a week for three months, and once a week for four months. The concentration of aleudrine used was three parts per thousand. In evaluating the results, patients who reported prolonged absence of dyspnea, though admitting occasional slight difficulty in breathing which soon disappeared spontaneously, were classed as 90 per cent improved; those who continued to have slight dyspnea, expecially after a full meal, easily relieved by mild sedatives, were considered to be 75 per cent improved; those who continued to have dyspnea, especially on effort, which however was much less severe and did not prevent their continuance of their usual activities, were classed as 50 per cent improved; those who showed some improvement but only after prolonged treatment were called 25 per cent improved. Five of the 21 patients treated by aleudrine alone were 75 per cent improved, 8 were 50 per cent improved, 3 were 25 per cent improved, and in 5 the treatment failed entirely. In the second series of 18 patients for whom a mixture of aleudrine, three parts per thousand, idrianol 2 per cent, and novocaine 2 per cent was used, 3 patients were 90 per cent improved, 8 were 75 per cent improved, and 7 were 50 per cent improved. There were no failures. The author attributes these improvements to the increase of oxygen in the arterial system and in the tissues

resulting from dilatation of the air passages, and also to better oxygenation of the heart muscle itself.—*Emphysème pulmonaire et aérosols médicamenteux, R. Charlier, Le Poumon, May–June, 1947, 3: 199.*—(*A. T. Laird*)

Sarcoidosis.—Twenty-eight cases of sarcoidosis, admitted to an Army general hospital between July 1, 1942 and April 1, 1946, are reviewed. Fifteen of the patients were Negroes. The symptoms were: cough in 9 cases, hemoptysis in 2, dyspnea in 11, chest pain in 6, weight loss in 6. Enlargement of peripheral lymph nodes was seen in 26 cases. The eyes were involved in 11 cases. Tuberculin tests were done in 25 patients: there was no reaction in 21, a doubtful reaction in 2, and in 2 cases there was a weakly positive reaction. The total blood protein was elevated in 19 and the globulin was elevated in 23 of 27 patients in whom such studies were done. Blood calcium was determined in 16 cases; it was increased in 10. The alkaline phosphatase was elevated in 5 of 14 patients. Leukopenia was found in 7 patients, eosinophilia in 7. Roentgenological studies revealed enlargement of the paratracheal lymph nodes in all patients, enlargement of the peribronchial lymph nodes in 25, pulmonary parenchymal involvement in 15, pleural effusion in 2, pericardial effusion in one, and osseous changes in the hands in 6. The lymph nodes remained discrete, being later replaced by fibrous tissue. One patient died because of respiratory embarrassment. In 2 cases roentgen treatment was given to the enlarged lymph nodes, without any effect.—*Sarcoidosis: A Clinical and Roentgenological Study of Twenty-eight Proved Cases, J. J. McCort, R. H. Wood, J. B. Hamilton & D. E. Ehrlich, Arch. Int. Med., September, 1947, 80: 298.*—(*G. C. Leiner*)

Carcinoma of the Lung.—Over a period of twelve years 412 patients with cancer of the lung were seen at the Charity Hospital and at the Ochsner Clinic, New Orleans. Of these, 246 underwent surgical exploration and 147 were subjected to primary pulmonary resection. There is a definite increase in the incidence of this disease primarily among white patients, with little or no change among Negroes. Approximately 90 per cent of the patients were in the fifth, sixth and seventh decades of life; 86.4 per cent were men. The right lung was involved in 59 per cent of the 147 cases of resection. A roentgenographic diagnosis of bronchogenic carcinoma was made in 82.3 per cent of the 147 cases; bronchographic examination was performed in 47 per cent. The latter method is particularly valuable when the lesion is located in the periphery of the lung or in an upper lobe. Bronchoscopy was performed in 125 of the 147 resected cases; in 61 instances a positive diagnosis was made by this method. Cytologic examination of the sputum or bronchial secretions will prove of increasing importance as a diagnostic procedure. Aspiration biopsy should not be used since it creates the danger of implantation of tumor cells in the needle tract. In 66 per cent of the 246 cases in which an exploratory operation was performed, a positive diagnosis was established prior to operation. Involvement of the phrenic and recurrent laryngeal nerves was not considered a contraindication to exploration. The hospital mortality before and after 1942 was 46.4 per cent and 19.3 per cent, respectively. Empyema developed in 12.2 per cent of the 147 cases. The average hospital stay was 32.3 days before 1942 and 13.5 days after 1942. Of the patients operated on five years ago or more, 23 per cent are still alive.—*Primary Cancer of the Lung, A. Ochsner, M. DeBakey & J. L. Dixon, J. A. M. A., October 11, 1947, 135: 321.*—(*H. Abeles*)

Planigraphy in Lung Cancer.—Planigraphy (body section roentgenography) is of value as a supplementary method in the diagnosis of carcinoma of the lung. Its accuracy compares favorably with other X-ray methods of diagnosis. Of 47 cases examined by planigraphy, diagnostic failures were noted in only 5 instances.—*Planigraphy in the Diagnosis*

of Bronchogenic Carcinoma, L. G. Rigler & T. B. Merner, Am. J. Roentgenol., September, 1947, 58: 267.—(J. E. Farber)

Apical Form of Bronchogenic Carcinoma.—There are four stages in the clinical evolution of bronchogenic carcinoma situated in the apex: (*1*) The initial stage, with an apical X-ray shadow impossible to distinguish from apical pleurisy. Diagnosis is almost never made in this stage. (*2*) The stage of extrapulmonary invasion. There are pains in the shoulder and in the medial aspect of the homolateral arm. There may be symptoms of disturbance of the sympathetic system. (*3*) The stage of clinical characterization. In addition to the above there may be a lower brachial paralysis, Horner's syndrome and other sympathetic disturbances, phrenic nerve paralysis, recurrent nerve paralysis or, in left sided tumors, anginal symptoms. Masses may be present in the supraclavicular region and in the supra- and subscapular areas and there may be X-ray evidence of costal and vertebral osteolysis. (*4*) The fourth stage is always characterized, barring death from intercurrent illness, by the signs and symptoms of spinal cord compression with paraplegia. These clinical stages correspond pathologically to the extensions of the bronchogenic tumor, first within the lung itself, and later to invade adjacent neural and bony structures.—*La forma apical del cáncer bronco-pulmonar, N. Romano & R. Eyherabide, Rev. de tuberc. de Peru, January-June, 1947, 24: 965.—(F. Perez-Pina)*

Giant Mediastinal Fibrolipoma.—A large mediastinal fibrolipoma in a man 46 years old caused but few symptoms at first and was diagnosed as a benign intrathoracic growth. Suddenly a picture of extreme collapse developed through the intrapleural rupture of a superficial vessel of the tumor. This unusual complication and the diagnostic problems it raised even while operating make the case interesting. The postoperatory course was favorable after a fibrolipoma weighing 2,400 g. (over 5 pounds) was removed. Most of the cases reported in the literature are necropsy findings. Complications are uncommon and in most of the few cases operated the neoplasm weighed less than 500 g. However, Watson and Urban in 1944 reported a case operated successfully in which the growth weighed 3,100 g.—*Fibrolipoma mediastinal gigante: Hemotórax por rotura vascular, G. Pollitzer & O. A. Vaccarezza, An. Cáted. de pat. y clín. tuberc., June, 1946, 8: 145.—(A. A. Moll)*

Occupational Lung Disease.—The literature of diseases of the lung caused by occupational dust other than silica is reviewed. Exposure to metallic dusts such as manganese, beryllium, vanadium and osmium causes chemical pneumonitis. A sarcoid-like syndrome may develop long after exposure to beryllium. Mouldy vegetable matter such as hay, corn, bagasse and cotton, gives rise to acute bronchiolitis, but there is no conclusive evidence to support the theory that this is the result of a fungus infection. Complex salts of platinum give rise to a form of asthma. The incidence of carcinoma of the lung is abnormally high in persons exposed to arsenic dust. Metals according to atomic weight are opaque to X-rays and dusts such as ferric oxide and barium give rise to radiographic shadows called siderosis and baritosis, respectively. Silver is deposited in the elastic layer of arteries of workers exposed to its dusts. The silicates, particularly china clay, talc, mica, sillimanite and asbestos, give rise to various kinds of fibrosis in the lung though not to a nodular fibrosis like that caused by quartz and silica. Graphite appears to be harmless.—*Occupational Lung Disease, K. M. A. Perry, Thorax, June, 1947, 2: 91.—(A. G. Cohen)*

Benign Pneumonoconiosis.—Three men employed as oxyacetylene steel cutters for seven to twenty-four years were found on roentgenological examination to have discrete nodulation or stippling of the lung fields. These findings, similar to those described for electric arc welding, include: (*1*) discrete and

rather sharply defined rounded densities of more or less uniform size and equal distribution in both lungs, (*2*) no tendency to confluence of the shadows, (*3*) hilum shadows always smaller than would be expected with silicosis of this degree (except during infections). None of the cutters has associated progressive tuberculosis which is further evidence of primary siderosis with little or no silicosis. In these patients there was no measurable impairment of lung function. Careful postmortem studies of cases of this type may some day show that all that is nodular by roentgen-ray examination is by no means always silicosis.—*Benign Pneumoconiosis Due to Metal Fumes and Dusts, O. A. Sander, Am. J. Roentgenol., September, 1947, 58: 277.*—(*J. E. Farber*)

Hemorrhage in Aberrant Lung Tissue.—A case is reported of death as a result of a sudden internal hemorrhage. At necropsy the left pleural cavity was full of blood. A small tumor was found which was posterior and slightly to the left of the heart, attached to the mediastinum by a short narrow pedicle. A ruptured aneurysm surrounded by blood clot was found on the surface of the tumor. The lungs were normal. Sections of the tumor revealed collapsed lung tissue with persistence of numerous bronchioles and blood vessels. The picture was that of long-standing bronchiectasis. The case was therefore one of hemorrhage into an aberrant segment of lung tissue.—*Fatal Hemorrhage in Aberrant Lung Tissue, F. D. Hart & A. C. Jones, Lancet, November 15, 1947, 2: 722.*—(*A. G. Cohen*)

Congenital Funnel Chest.—The hereditary character of funnel chest has been pointed out previously. The author reports a group of 6 cases in three generations of one family. No other abnormalities were apparent. It is believed that the condition is inherited as a dominant character.—*Congenital Funnel Chest, H. S. K. Sainsbury, Lancet, October 25, 1947, 2: 615.*—(*A. G. Cohen*)

Gastric Cysts.—A case of successful removal of a large intrathoracic cyst in a 14-year-old girl is reported. The literature is reviewed.—*Intrathoracic Gastric Cysts, E. W. Davis & D. Salkin, J. A. M. A., September 27, 1947, 135: 218.*—(*H. Abeles*)

Post - tracheotomy Complications.—The clinical courses of all children having a tracheotomy during the four and one half years preceding May, 1946 were carefully observed at the St. Louis Children's and St. Louis City Hospitals. Previous observations had led to the belief that mediastinal emphysema, sometimes followed by pneumothorax, was the result of forced inspiration in the presence of an inadequate airway and an incision in the neck. It was decided to employ preoperative bronchoscopy whenever possible to decrease the hazard. Experiments on dogs showed that following tracheotomy and upper respiratory obstruction, air or dye or iodized oil was often found to be aspirated into the mediastinal tissue spaces, and even the pleural space. One hundred and twenty patients, all under the age of 10 years, had a tracheotomy for various acute inflammatory and mechanical obstructive indications. Dyspnea often persisted after the procedure, due to lower respiratory obstruction. Seventy-four cases were examined by lateral chest films, and 25 per cent of the cases were said to have mediastinal emphysema. Eighty-two cases were examined by an AP chest film, and 10 per cent had a pneumothorax. The advisability of preoperative clearance of the airway by bronchoscopy or aspiration has been shown by clinical data; the bronchoscope may even be indwelling at the time of operation. About 40 per cent were bronchoscoped before operation; the incidence of mediastinal emphysema was 70 per cent greater in those not bronchoscoped, and pneumothorax was 8 times as common (these figures are statistically significant). The frequent occurrence of the two complications indicates their importance in differential diagnosis during care of tracheotomized patients. Diagnosis requires careful physical examination and use

of the X-ray. Treatment consists of oxygen, a clear airway, and judicious aspiration of air.—*Further Observations on Post-Tracheotomy Mediastinal Emphysema and Pneumothorax, G. B. Forbes, G. Salmon & J. C. Herweg, J. Pediat., August, 1947, 31: 172.—(W. H. Oatway, Jr.)*

Case-Finding in Reykjavik.—Legislation, efficiently organized Health Center work and the interest and co-operation of the public made possible, in the first four months of 1945, a tuberculosis case finding survey in Reykjavik, Iceland, in which 99.32 per cent of the entire population of nearly 46,000 persons was examined. Children from 1 to 13 years of age were tuberculin-tested by the Vollmer patch method while pupils between ages 13 and 20 were given the Mantoux test with P.P.D. Infants under 1 year were not tested. All positive reactors were roentgenographed. The remainder of the population was x-rayed and those with evidence of tuberculosis were given tuberculin tests. A group of 522 persons (1.17 per cent) consisting of invalids and the aged received only physical and sputum examinations. Tuberculous infection as revealed by tuberculin tests performed on 11,605 children and adolescents showed a slight increase up to the age of 12 when 12.4 per cent of the boys and 15.7 per cent of the girls were positive, and a more marked increase at 14 with 19.5 per cent of the boys and 18.1 per cent of the girls infected. At the age of 19, 44.2 per cent of the males and 45.2 per cent of the females reacted positively. There were found 808 cases with tuberculous lesions in the lungs previously unknown to the Health Center. These included 71 (1.6 per mille) cases of active tuberculosis, 75 (1.7 per mille) cases of indeterminate activity, the overwhelming majority of which most probably represented healed but not exclusively fibrotic or calcified lesions, and 622 (15.2 per mille) instances of fibrotic and calcified changes. 56.3 per cent of the active cases revealed positive bacillary findings. 60.3 per cent of the new active cases were in the age group 15–30 years and 8.4 per cent were above 60 years. 68 per cent in the indeterminate group were 20 to 40 years of age, 6.7 per cent 60 or older. The number of fibrotic or calcified cases increased rapidly with age, culminating between 60 and 70 years. A comparison of the results of this survey with that of the ordinary work of the Health Center shows that 18.8 per cent of all active cases and 44.5 per cent of the indeterminate and fibrotic or calcified cases known to the Center in November 1945 were found through the survey, and that 63 per cent of all cases in the age group 50 and over and 85 per cent at and after the age of 70 had been unknown before. Therefore, if it is impossible to examine the whole population of a district, the age groups 15 to 30 and over 60 years should be preferred. By combining the previously known cases with those detected by the survey the prevalence of the population of Reykjavik is determined and analysed as to classification in the various age and sex groups. The value of the survey consists not only in the number of cases found but in the knowledge gained as to the state of infection in almost all children, and in the accumulation of roentgenograms of nearly all the inhabitants over 14 years of age.—*Tuberculosis Case-Finding Survey of the Total Population of Reykjavik, Iceland, 1945, S. Sigurdson & O. P. Hjaltested, Publ. Health Rep., Nov., 1947, 62: 1593.—(O. Pinner.)*

Tuberculosis in Denmark.—The author, Theodore Madsen, delegate from Denmark, presented the report here summarized to the permanent committee of the International Office of Public Hygiene at its session in May and June, 1946. From 1876 to 1945, Denmark had a very high tuberculosis death rate, about 30 per 10,000 population. This has gradually diminished since 1890 except for a temporary increase during the first World War. The gradual decrease over the years he attributes in part to improved hygiene and to laws established in 1905 to combat tuberculosis, including the establishment of sanatoriums (one bed for every 1,000 inhabitants), free treatment, and other measures. Useful as they were, these measures had less effect in the reduction of the tuberculosis death rate

than the improved nutrition and housing of the population. During the last World War the death rate did not go up, probably because there was no especial scarcity of food. It did not however continue to fall, after the war, the author thinks, on account of the arrival in Denmark of infected individuals from Germany. He reviews also a tuberculosis survey made in 1933. Extensive tests were made using the intracutaneous method (Mantoux). Old Tuberculin and PPD were used, 0.01 mg. and 1 mg. of the former and 0.005 mg. and 0.05 mg. of the latter, units adopted in 1938 by the Commission on Biologic Standards (League of Nations). The survey began with the examination of school children. At once marked differences were noted in different regions, and it was soon recognized that they were related to the prevalence of bovine tuberculosis. This was then wide-spread especially in the South Jutland. On the other hand, there were areas where it had practically disappeared due to the method of vaccination promoted by Bernhard Bang. In the island of Bornholm in the Baltic Sea, there has been no bovine tuberculosis for several years. There, only 7 per cent of positive tuberculin reactions were obtained in children seven years of age, and only 15 per cent in children 15 years of age. On the other hand, in the village of Haderslev in South Jutland, 45 per cent of the children reacted at 7 years of age, and 75 per cent at 14 years. The mortality, and new clinical cases, surprisingly enough, were almost the same in the two places. The author believes that in Jutland the children received protective vaccination by drinking milk from tuberculous cows, providing the cows did not have mammary or other type of advanced tuberculosis. Continued efforts are being made, however, to eliminate bovine disease. In the course of the examination of different population groups, it was found that new cases of progressive tuberculosis were rarely found in persons who had had positive tuberculin reactions, but that those with negative reactions were more likely to develop clinical disease when exposed to infection. The author favors vaccination of such individuals with BCG. The fight against tuberculosis is being prosecuted vigorously in Denmark. The armament consists of a network of sanatoriums, dispensaries and mobile X-ray units. Gradually the entire population is being reached. Sources of infection are being isolated. Individuals with negative reactions to tuberculin are being vaccinated with BCG. The number of children in Copenhagen found to have positive reactions has decreased from 12 per cent in 1940 to 6 per cent in 1944. In conclusion, the author says the best plan is to concentrate attention on that part of the population which presents negative reactions to tuberculin and to consider the remainder already immunized. There may be some question whether such a plan would work if the resistance of Danes, who have already been infected, should in the future be diminished by undernutrition or overcrowding.—*La tuberculose au Danemark, T. Madsen, Selection, April, 1947, 1: 201.*—(*A. T. Laird*)

Tuberculin Test Methods.—The subjects were 706 West African native school children and 69 tuberculosis contacts. They were all given both Patch and Mantoux tests (using 0.1 mg. of Old Tuberculin). Positive results were obtained by Patch in 59.9 per cent and by Mantoux in 65.2 per cent. Complete disagreement was found in 79 cases (10.2 per cent); this includes 19 cases in which the patch test gave a plaster reaction. The author concludes that the patch test is good for surveys, provided that Mantoux tests are made in the cases showing negative results.—*The Tuberculin Test: A Comparison of the Patch Test and the Mantoux Test in West African Natives, R. B. T. Baldwin, Brit. J. Tuberc., July, 1947, 41: 59.*—(*A. G. Cohen*)

BCG Vaccination.—A ten-year study of the result of BCG vaccination in human beings was carried out by the Tice Laboratory, the Clinic of the Chicago Municipal Sanatorium, and the University of Illinois College of Medicine. Controls were represented by a population similar to the vaccinated one. The principle of isolating the vaccinated person until

the tuberculin test became positive was practiced when tuberculosis was present in the household. The following groups were studied: *Group I*—2,831 newborn infants living in the poorest districts of Chicago but not in household contact with tuberculosis. The rate of tuberculosis per thousand person-years was 3.31 times as great in the controls as in the vaccinated. There was one death in the vaccinated group against 7 in the controls. In 1,159 siblings the tuberculosis rate per thousand person-years was 5.29 times as great in the controls as in the vaccinated. There was a suppression of virulent infection in the vaccinated group, but when infection with virulent organisms did occur, the lesions were less extensive, of shorter duration and calcified earlier than the lesions in the nonvaccinated group. *Group II*—256 newborn infants of tuberculous parents. Isolation was practiced for the controls and vaccinated alike. This group was followed for six years. There were two cases of tuberculosis in the vaccinated as compared to 5 in the controls. There were 4 deaths in the controls and none in the vaccinated. *Group III*—student nurses. In 142 vaccinated nurses no case of pulmonary tuberculosis developed over a period of seven years. In 199 controls 3 cases developed. There were 3 additional cases in tuberculin-positive reactors. *Group IV*—medical students. In 109 vaccinated students no case of pulmonary tuberculosis developed. Four cases were reported in the controls. *Group V*—children in a housing project. In 699 vaccinated children there was no case of tuberculosis while in 625 controls there were 4 cases. In 275 tuberculin positive reactors there were 2 cases. *Group VI*—35 tuberculin-negative inmates at a mental institution. In 20 vaccinated inmates no case of tuberculosis developed over a period of four years. In 15 controls one case of bilateral minimal arrested pulmonary tuberculosis was found. The multiple puncture method of vaccination was used. Practically no complications were seen. Following vaccination at birth the tuberculin reaction became 96.6 per cent at the end of one month. In young adults 90 per cent reacted to 1.0 mg. in two weeks. A positive tuberculin reaction following a single vaccination was present in 92.6 per cent after three and one-half to four years in children vaccinated at birth and 88.6 per cent in student nurses at the end of their training, three years after vaccination.—*BCG Vaccination in All Age Groups: Methods and Results of a Strictly Controlled Study, S. R. Rosenthal, Eleanor I. Leslie & E. Loewinsohn J. A. M. A., January 10, 1948, 136: 73.*—(*H. Abeles*)

BCG Dry Glucose Vaccine.—This is a review of a report by E. N. Leschinskaja in the American Review of Soviet Medicine, February 1946, on experiments by Leschinskaja and Vakengut of the BCG Laboratory, Central Institute of Experimental Medicine, Union of Soviet Socialist Republics. The purpose was to overcome the perishability of the BCG vaccine. It was found that BCG retains its viability better in a 50 per cent glucose solution than in any other medium. After a month of drying, the number of colonies obtained upon inoculation remains constant for several months. The dried vaccines may be stored at room temperature, but the best method for storing is refrigeration. The glucose vaccine emulsifies readily. A standard sterile preparation was obtained; the growth of bacilli from this dry BCG after 16 months of storage is approximately equal to that from a liquid vaccine preserved for 2 months. The dry glucose vaccine, as tested by animal vaccination after preservation for one and one half years, differs very little from fresh liquid vaccine.—*Review of the Immunization Value of the BCG Dry Glucose Vaccine, (Not signed), Public Health Reports, February 1947, 62: 211.*—(*O. Pinner*)

BCG Vaccination.—The adequate employment of BCG for immunization should not consist solely of vaccination. Vaccinated persons must be tuberculin tested repeatedly and protected from infection by tubercle bacilli until they become tuberculin-positive. Nothing is gained by vaccinating tuberculin-positive persons. Even if the test is negative, the

person may be in the incubation stage. If there is a known recent exposure to tuberculosis, it is best to defer vaccination for six weeks, at the end of which time the tuberculin test should be checked. There is no harm in vaccinating tuberculin-positive persons, but this confuses interpretation of the result. The sensitivity thus produced lasts from two to ten years. BCG vaccination provides only relative and not absolute immunity. There is no way to distinguish tuberculin sensitivity produced by BCG from that caused by tuberculous infection. In practice, immunity is considered to last as long as the tuberculin test remains positive.—*The Principles of B. C. G. Vaccination, A. J. Wallgren, Lancet, February 14, 1948, 1 237.*—(*A. G. Cohen*)

Adenopathy after BCG.—Four cases are reported in which pulmonary tuberculosis with cavitation was treated with BCG or dead tubercle bacilli administered by intracutaneous scarification on the thigh. These cases showed abscess formation and fistulization of an inguinal lymph node two and one-half months after scarification. Spontaneous regression and closure of the fistula occurred within a few weeks. There was no bacteriological evidence of secondary infection. The development of a caseous abscess after intracutaneous administration of BCG or dead tubercle bacilli is considered an exceptional occurrence since it was found only in these 4 cases among about 1,000 scarifications.—*Adenopathies suppurées produites par applications de B.K. morts ou de BCG sur scarifications cutanées, E. Coulaud, Rev. de la tuberc., 1947, 11 341.*—(*V. Leites*)

Multiple Puncture BCG Vaccinating Lancet.—This apparatus contains 40 phonograph needles soldered into a circular brass disc. By release of a spring the needles are shot through a head plate the necessary distance (adjustable) for adequate penetration of the epidermis. The instrument is 4.3 cm. wide at the plate and the overall length is 12.5 cm. To vaccinate, the needles are shot through a small piece of filter paper or cellophane, wet with the BCG vaccine, into the skin. A successful "take" would thus consist of 40 tiny papules if read approximately three weeks after vaccination. A serious handicap in mass vaccination with the automatic apparatus is the loss of time in sterilizing between each vaccination. Rapid methods for sterilizing are described. The article includes photo-reproductions of the instrument and the appearance of the "take."—*A Spring-actuated Multiple Puncture Apparatus for BCG Vaccination, K. Birkhaug, Am. J. Clin. Path., September, 1947, 17 751.*—(*J. S. Woolley*)

Psychiatry in Tuberculosis.—One function of a tuberculosis sanatorium is to teach patients a new mode of life. To achieve this effectively requires an understanding of the state of mind of the persons involved. Few patients accept the disease with equanimity. Most are in a mood of mild overt or concealed depression or anxiety. Some put on an attitude of defiance and ultra-cheerfulness. This is only a false front against the same anxiety. The patients may have resentment against physicians, nurses, food, etc. The appearance of these moods depends upon many factors including severity of disease, duration of illness etc. Upon admission to the sanatorium, the patients enter a new world. Their mood is affected by other patients; some frighten, others cheer them. They develop a feeling of dependence upon physicians and nurses which is often hard to shake. Some use the time to broaden their interests; most develop very narrow interests of a strictly local character. They often become childish as a result of the regimentation. In places where mingling of sexes is prohibited, undue interest in the opposite sex is often aroused. In time, they sever themselves from outside interests, at the same time developing stronger ties to the sanatorium and its population. Sanatorium management can be democratic or autocratic. Certain procedures are suggested. Upon admission, the patient should be interviewed by a senior staff physician and given some idea about the nature of the disease, length of treatment, etc. A closer rapport between physician and patient is advised. The overenthusiasm of the altruistic type of pa-

tient should be curbed while the selfish type should be encouraged to do more for others. Initial mild depressions should not be discouraged. Those who conceal their anxiety should be encouraged to voice their fears. The nurses should be trained to understand tuberculous patients. Changes of nurses' assignments should be reduced to a minimum. Absolute bed-rest should never last more than a month. Bedroom amenities such as radio and decorations should be permitted. Compatability of room-mates is important. Food variety is necessary. Smoking in moderation is permissible unless there is laryngeal involvement. The use of alcoholic beverages is not desirable. Visiting hours two to three times a week are in order, but children should not be allowed to visit. No leave should be allowed for the first four months. For the next two months, leave to destinations within a limited distance is permissible. After six months, leave not exceeding forty-eight hours should be granted to selected good cases. A fair hearing should be granted to all complaints. Stimulating occupational therapy is essential. Upon discharge, a personal interview with a senior physician is called for. Female patients should be cautioned against becoming pregnant within two years and should be given directions as to where suitable contraceptive advice can be obtained.—*The Psychological Aspects of Sanatorium Management, G. S. Todd & E. Wittkower, Lancet, January 10, 1948, 1: 49.—(A. G. Cohen)*

Histoplasmin Sensitivity.—Intracutaneous tests with PPD tuberculin, coccidioidin and histoplasmin were carried out in 1,220 patients. Ninety-six and six-tenths per cent were sensitive to tuberculin, 58.6 per cent to histoplasmin and 31.1 per cent to coccidioidin. Of the entire group, 528 were followed long enough for complete observation. Of these, 117 had acid-fast bacilli in their sputa or gastric washings and 167 had pulmonary calcifications. The patients who were sensitive to histoplasmin showed a higher percentage of hilar and parenchymal calcifications than a similar group of patients who were sensitive to tuberculin or coccidioidin. Bone marrow studies in 81 patients who were sensitive to tuberculin did not reveal the presence of *Histoplasma capsulatum*. Cultures of material from lymph nodes of 11 patients with progressive exudative pulmonary lesions, positive histoplasmin and negative tuberculin reaction were negative. One and seven-tenths per cent of the patients were sensitive to histoplasmin only, 0.6 per cent to coccidioidin only, and 33.9 per cent to tuberculin only. The use of the histoplasmin sensitivity test is of little value in the differential diagnosis of pulmonary diseases. There is a possibility of a benign self-limiting infection with *Histoplasma capsulatum* with complete recovery, pulmonary calcifications and sensitivity of the skin to histoplasmin.—*Sensitivity of Skin to Histoplasmin in Differential Diagnosis of Pulmonary Disease, M. E. Groover, Jr., E. A. Cleve, S. Bornstein, A. G. Rice, A. F. Galloway & C. P. Macaluso, Arch. Int. Med., October, 1947, 80: 496.—(G. C. Leiner)*

Histoplasmin Sensitivity.—A total of 1,188 students at a college in South Wales were X-rayed. Those with calcification were recalled for skin tests. The allergens used were Old Tuberculin, histoplasmin, oidiomycin and a mixed solution of several other fungus extracts. There were 87 cases which showed calcification, of whom 82 were tested. Of these, 67 were tuberculin positive, 15 were negative, all of these being cases with calcification only at the hilus. All tests with histoplasmin and other fungal allergens were negative. The fact that the negative tuberculin tests were found in patients with hilar calcification suggests possible error in interpreting the films. It is concluded that pulmonary calcification in South Wales is not related to sensitivity to histoplasmin or extracts from certain other fungi.—*Intra-Pulmonary Calcification and Histoplasmin, B. H. McCracken, Thorax, March, 1948, 3: 45.—(A. G. Cohen)*

Phthisiogenesis.—Three basic questions of phthisiogenesis are submitted to a re-evaluation: (*1*) Is phthisis determined by the age at which primary infection occurs? (*2*) Does phthisis occur at a definite stage of tuberculous

infection? (*3*) Is phthisis of exogenous or endogenous origin? Judging from Paris statistics the authors were unable to confirm the modern theory according to which phthisis is mostly due to a late primary infection. Among 301 autopsies of patients who had died of progressive pulmonary tuberculosis 84 per cent showed the presence of old calcified foci. Only 15.5 per cent had recent, incompletely healed or exacerbated primary lesions. Even in persons between the ages of 20 and 30, 76.7 per cent showed old healed primary foci. In the paragraph dealing with question no. 2 the theory of Ranke is criticized in many of its aspects. The phthisiogenetic rôle of Simon foci is denied. The frequency of an apical onset of progressive tuberculosis ("apex" being defined in a large sense as the upper third of the upper lobe) is not attributed to hematogenous seeding but to a physiological predisposition of the apex in adults to implantation of exogenous tubercle bacilli. This predisposition is partly explained by the anatomical structure of the thoracic cage of the adult in contrast to that of the child. The fact that frequently there is an interval between primary infection and the development of phthisis would seem to indicate the existence of distinct stages of tuberculosis. However, in countries with late primary infection this interval is often entirely absent—a proof that no definite stage has to be reached in order to permit phthisis to develop. Phthisis (defined as progressive pulmonary tuberculosis) develops only in a state of diminished resistance of the host (the essence of which is as yet unknown). This state is not necessarily present at the moment of primary infection. The occurrence of a primary infection and the development of conditions which would permit it to become progressive have no causal connection. (*1*) They may occur at such distant moments that the primary lesions are already healed. (*2*) If they coincide primary infection appears from the onset as progressive tuberculosis. (*3*) They may occur after a certain time-interval when the primary lesions have not yet become healed. It is believed that the controversy regarding the exogenous and endogenous origin of phthisis can be solved by approaching the problem as follows: Progressive tuberculosis can develop in one of three ways: (*1*) through bacilli acquired very long ago and now originating from healed foci; (*2*) through bacilli acquired very recently; (*3*) through bacilli acquired in the past which had produced latent but unhealed lesions capable of giving rise at a given moment to progressive tuberculosis. The authors consider the first variety (development of phthisis from old healed primary foci) as almost nonexistent. Among 251 autopsies of tuberculous patients they found possible exacerbation of the primary complex in only 4.8 per cent of cases. Simon foci were also mostly found sterile in the rare instances when they were present. The existence of the second variety (phthisis from recently inhaled bacilli) is considered beyond doubt. In this group belongs progressive primary tuberculosis or cases in which reinfection leads immediately to phthisis. Autopsy findings in the latter cases show the coexistence of completely healed primary foci with extensive lesions. The greatest emphasis is laid on the third variety—cases in which the penetration of bacilli was not necessarily of recent date but where the latent lesions were not healed at the moment of development of phthisis. It is considered immaterial whether the latent lesions are of the primary type (as in countries with late primary infection) or latent reinfection lesions, which is more frequent in Paris. It is the incomplete healing of these lesions and not their chronological phase which is the determining factor. The incidence of such silent lesions and the possibility of progression into phthisis after a variable time interval has become more widely known with the increasing use of mass X-ray surveys. But the general and local factors determining progression and regression of lesions have so far no scientific explanation. This last variety of progressive tuberculosis would thus be both exogenous and endogenous. Its incidence will be determined only after greater numbers of individuals with latent lesions have been followed for long periods of time. The main conclusion drawn from the

foregoing reflections is the evident great danger that exposure to tuberculous infection represents during the whole life span, and not only in childhood. The great majority of latent foci originate after childhood, their course being most frequently abortive. However, it is those lesions that do not regress and heal which are considered as the main origin of phthisis. The fight against tuberculosis is thus the prevention of infection at no matter what age, a fact not enough emphasized by the endogenists.—*Réalités et incertitudes de la phtisiogénèse, P. Ameuille & G. Canetti, Rev. de la Tuberc., 1947, 11: 307.—(V. Leites)*

Primary Infection in the Adult.—Among 330 student nurses between the ages of 19 and 25 who entered the Lyon nursing school from 1936 to 1943, 116 were found to have a negative tuberculin reaction on initial examination. This group of nonreactors was followed throughout the training period and as late as 1947. There was a definite increase in the incidence of negative reactions on entry since 1936: 33 per cent in 1937, 44 per cent in 1943, 55 per cent in 1946. The follow-up consisted of X-rays and tuberculin tests (Pirquet method) at four-month intervals. Ninety-two (80 per cent) of the initially negative reactors left school with a positive tuberculin test. Among these 92 cases, 60 per cent had acquired their primary infection within the first eight months, 80 per cent after one year, 90 per cent after eighteen months and 100 per cent after thirty months. The subsequent fates of these student nurses who had converted their tuberculin reactions in hospital surroundings (except on tuberculosis services) were studied. (*1*) In 71 cases (75.5 per cent) the primary infection appeared at the onset very benign, either completely silent or with very slight symptoms such as transient asthenia or weight loss. In this group there was one postprimary accident, a miliary tuberculosis developing four months after conversion. Further follow-up revealed 4 cases of late "tertiary" tuberculosis of the infiltrative or cavernous type appearing three to five years after conversion. (*2*) Eight cases (7.5 per cent) developed manifest primary tuberculosis in an acute form with fever of ten to fifteen days' duration. Among these 8 cases there were 2 deaths due to post-primary progression of disease (one case of miliary tuberculosis and one case of tuberculous meningitis). This group showed no late pulmonary involvement. (*3*) Fourteen cases (15 per cent) developed primary tuberculosis with severe symptoms and high fever, with or without erythema nodosum. Subsequently 4 cases developed post-primary manifestations such as pleurisy and pulmonary infiltrations of the type of epituberculosis. Only one case of tertiary phthisis developed three years after tuberculin conversion. These statistical data seem to indicate that there is a correlation between clinical severity of the primary infection and the incidence of postprimary manifestations in the immediate future. In the group of primary infections with moderate and severe symptoms the incidence of postprimary manifestations was 27 per cent with 2 deaths. In the latent or clinically benign forms of primary infection there was only one case of postprimary involvement (1.4 per cent). The above statistics do not show any correlation between clinical severity of primary infection and the subsequent occurrence of "tertiary" tuberculosis. The group of 214 student nurses with positive tuberculin tests on entrance into training showed not a single pathological incident related to tuberculosis during a follow-up period of seven years.—*La primo-infection tuberculeuse de l'adulte en milieu hospitalier et ses suites tardives, J. Brun & M. Planchu, Rev. de la tuberc., 1947, 11: 356.—(V. Leites)*

Healing of Tuberculous Foci.—When tuberculous infection of lung tissue occurs, the reaction will be either exudative, exudative-productive, or purely productive. This depends predominantly on the immunological balance of the individual and is not the subject of the present study. The author attempts to analyze the physico-chemical and physical forces which play a rôle in healing of predominantly exudative foci. He chooses the example of a 2

mm. focus with a caseous center in which there are dead cells, fibrin, and dead and/or living tubercle bacilli. This focus is surrounded by a coat of specific granulation tissue containing epithelioid cells and sometimes giant cells, and around this a nonspecific zone of apposition is formed, as if it were around a foreign body. After central necrosis has occurred, hetero- and autolysis split the protein molecules until the colloids reach the size of electrolytes. When this has occurred, the products can be disposed of according to the normal processes of diffusion into the blood and lymph channels. The connective tissue capsule surrounding the caseous center can be thought of as a semipermeable membrane to which the Donnan equilibrium may be applied. The electrolytes and diffusible colloid substances will be transported to one side of the membrane in an effort to maintain neutrality against the nondiffusible substances remaining in the center. An enzymatic cleavage progresses in the center, more and more cleavage products are transported to the periphery and disposed of in the environment on the other side of the membrane. Clearly then, the whole process is dependent on the speed of the enzymatic break-down. Although ordinarily native body proteins prevent the deposition of insoluble calcium salts, this does not obtain in the center of the necrotic mass where no living proteins are found. Also, no carbon dioxide is produced there as it is in living tissue, and the result is precipitation of insoluble calcium carbonate, sulfate, and phosphate. Calcification thus takes place. Obviously, then, calcification is a process which is in no way specific for tuberculosis, but it obtains wherever a necrotic center is surrounded by a connective tissue capsule so that a basis for Donnan's equilibrium is established. Calcification can be thought of as a fortunate chemical accident. Only when the formerly necrotic center has been inactivated from a toxic-chemical and bacterial point of view does organization by fibroblastic and connective tissue activity take place. There is ample evidence to indicate that caseous tissue itself contains no capillaries, and the palisade arrangement of fibroblasts around an active tuberculous focus cannot be interpreted as evidence of "invasion" by granulation tissue. It is only evidence that the dead and dying fibroblasts are passively arranged in the line of least resistance, as if sucked in by a funnel. As to the purely physical factors concerned in the healing process, it can readily be seen that the surface of a tuberculous focus does not increase in size nearly as rapidly as its volume with increasing diameter (if the focus be thought of as a ball). Healing is therefore not only absolutely but also relatively faster in small foci.—*Physische and physiko-chemische Faktoren bei der Aushellung tuberkuloser Herde in den Lungen, A. J. M. Lohman, Schweiz. med. Wchnschr., July 26, 1947, 77: 802.*—(*H. Marcus*)

Gas Embolism in Brain.—Three cases of cerebral gas embolism developed among about 8,000 pneumothorax fillings (0.025 per cent) performed in a Rio de Janeiro tuberculosis hospital. The 3 patients recovered in a period varying from two to eighteen days. Treatment was, according to Amorim-Castel Branco's method, with ergotamine tartrate intramuscularly immediately after symptoms became apparent, one single dose of 0.25 to 0.5 mg. being given. Acetylcholine was also used in the most serious case until all signs of the embolic process subsided. This case also demonstrated that a gas embolus may remain unabsorbed over twenty-four hours in the lumen of the vessel. In such cases absolute bed-rest, preferably in the Trendelenburg position, should be enforced. In opposition to the outcome in this series, the fatality rate in the literature is placed at 10 per cent.—*Conduta terapéutica nas embolias gasosas cerebrais, S. Rubens Barbosa, Clín. tisiol. (Rio de Janeiro), January-March, 1947, 2: 83.*—(*A. A. Moll*)